

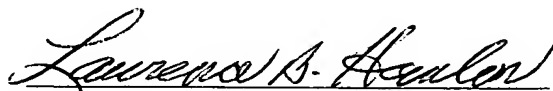
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of any patent issued thereon.

  
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Date: 05/24/2006

### **Aircraft Passenger Seat**

The invention relates to an aircraft passenger seat with seat components such as a seat part and a backrest with a support structure which bears the backrest cushioning, on the back of which there are a tray table which can be folded up onto the back and which can be folded away into the position of use, and a pocket-like receptacle for holding utensils, especially printed materials and travel accessories.

Aircraft passenger seats of this type are widely used in conventional passenger aircraft, specifically in airline or charter air transportation. As is recognized, in commercial air transportation for economic reasons a priority objective is to achieve the best possible use of interior cabin space by there being as large a number of passenger seats as possible within a given useable space. But at the same time it must be ensured that each passenger has available cabin space which is sufficient with respect to sitting and/or traveling comfort, as so-called "living space". Known passenger seats do not adequately satisfy the demands to be imposed on adequate "living space" when seating in the cabin space is tight, as is especially the case in air transportation in economy class.

Therefore the object of the invention is to make available an aircraft passenger seat which even for tight seating in the cabin interior makes available comparatively more room to the passenger.

In an aircraft passenger seat of the initially mentioned type, this object is achieved as claimed in the invention in that the receptacle is formed by a cavity which extends in the support structure of the backrest at least partially between the folded-up tray table and the backrest cushioning.

In that, as claimed in the invention, the pocket-like receptacle has been moved into the long unused internal cavity of the support structure of the backrest, compared to known aircraft passenger seats in which the pocket-like receptacles are mounted underneath the tray table in the knee area of the passenger next behind, there is a larger amount of free space in the knee area. In the known aircraft passenger seats, especially when they are filled with travel literature, conventional safety instructions, and other travel accessories, the receptacles cause a major limitation of the free knee and leg space; this is avoided in the invention.

Advantageously in the aircraft passenger seat as claimed in the invention, to form the receptacle the long unused cavity can be used which extends from the area of the top edge of the support structure to the structure element of the support structure, which structure element forms the bottom of the receptacle and is located within the surface area of the folded-up tray table.

In this connection, the cavity for forming the main opening of the receptacle in the area bordering the top edge of the support structure can be open toward the rear. The main opening and accordingly the top edge of the support structure can also be offset down in height by an amount so that for this purpose in the support structure additional installation space is formed, for example for holding a display screen or the like.

As the rear wall of the pocket which is exposed when the tray table is folded away, the support structure of the backrest above the structure element which forms the bottom of the

receptacle has a plate which passes between the two side edges of the support structure and onto which the tray table can be folded.

This plate can have a latch means for fixing the tray table in the folded-up position.

Between the lower edge of the plate which forms the rear wall of the receptacle and the structure element which forms the bottom of the receptacle, a slot-like bottom-side opening of the receptacle can be formed which easily allows removal of small articles which are stored in the receptacle and easy cleaning of the receptacle.

There can be a small projecting lip on the edge of the structure element bordering the bottom-side opening of the receptacle in order to prevent printed material or smaller travel accessories located in the receptacle from slipping out. Furthermore, the support structure can be additionally reinforced by way of a transversely running bar underneath the receptacle.

The invention will be explained below in greater detail with reference to the drawings.

- FIG. 1 shows a schematically simplified and partially cutaway view of a seat row section with three aircraft passenger seats according to the prior art, only the area from their backrests being visible;
- FIG. 2 shows a schematically simplified perspective rear view of only the area of the backrest of one exemplary embodiment of the aircraft passenger seat as claimed in the invention, the tray table being omitted,
- FIG. 3 shows a perspective rear view of simply the backrest of the exemplary embodiment from FIG. 2, enlarged compared to FIG. 2, and

FIG. 4 shows a schematically simplified perspective rear view of another exemplary embodiment with an integrated display screen.

FIG. 1 shows a section of a row of seats with three aircraft passenger seats according to the prior art, the area of their backrests being shown. Tray tables 3 which are arranged to be able to move in the conventional manner on articulated arms 5 are shown in FIG. 1 in the non-use position, folded up onto the backrest 1. In this position the tray tables 3 can be detachably fixed by locking latches 7 which are configured and made in the conventional manner.

Underneath the tray tables 3 are pocket-like receptacles 9 which in the known aircraft passenger seats are made in the form of pockets for printed material as net pockets or pockets with a closed wall. As FIG. 1 shows, these pocket-like receptacles 9, when they are filled with printed material, for example conventional safety instructions for flight operation, with travel accessories, other printed material, and the like bulge to the rear and limit the leg area of the passenger sitting behind, especially in the knee area.

In FIG. 2 reference number 11 designates the support structure of a backrest 1 according to one exemplary embodiment of the invention, the support structure 11 bearing the backrest cushion 13. FIG. 2 shows the backrest 1 with a view of its back, for the sake of clarity the tray table 3 being omitted, which, when it is folded up onto the back of the support structure 11, can be locked by means of the swiveling latch 7 in the folded-up position, the latch 7 extending in the conventional manner over the top edge of the folded-up tray table 3.

FIG. 3 shows more clearly and on a larger scale the details of the support structure 11, it being apparent that in the support structure 11 the inner cavity which extends between the front of the support structure 11 which bears the backrest cushion 13 and its back in the region in which the tray table 3 can be folded onto the support structure 11 and can be fixed by means of the latch 7, is

used as pocket-like receptacle 15 for holding articles, for example printed material 17. The bottom 19 of the receptacle 15 formed by the cavity is formed by a structure element 21 which runs transversely from side edge to side edge of the support structure 11. In order to prevent articles from falling out of the receptacle 15 when the tray table 3 has been folded away, above the structure element 21 a plate 23 which forms the rear wall of the receptacle extends from side edge to side edge of the support structure 11. This plate 23 bears a movable latch 7 for locking the tray table 3 shown in FIG. 1.

Between the structure element 21 which forms the bottom 19 of the receptacle and the plate 23 there is a distance which defines a slot-like opening 25. This bottom-side opening 25 of the receptacle 15 formed by the cavity makes it possible for it to be easily cleaned and smaller accessories to be comfortably removed. In order to prevent printed material 17 or other articles from unintentionally slipping out, on the edge of the structure element 21 which borders the bottom 19 to the outside there is a lip 27 which projects slightly in the form of ribs.

In the illustrated exemplary embodiments, the receptacle 15 is an integral component of the backrest support structure 11. Accordingly a type of hard box with stiffly made segment parts of the back rest is implemented for the receptacle 15. For this purpose the backrest structure in spite of the added receptacle is stiffened as before such that for example in case of a crash, the crash forces which occur cannot lead to the seat collapsing, especially in the area of its backrest. The transversely running, continuous plate 23 between the two side or structure bars of the U-shaped support structure 11 is especially helpful in this connection.

In another exemplary embodiment as shown in FIG. 4, the top edge 11a of the support structure 11 in the direction of the tray table 3 which is not detailed is shifted down by a height such that a display screen 31 can be integrated into the support structure 11. Thus, on the back of the backrest a uniform surface is attained which in the case of a crash or an impact can reliably

accommodate and distribute the body forces which way be applied in order in this way to minimize the danger of injury for a rear seat occupant.

By eliminating the pocket located underneath the tray table 33 in the knee area of the aircraft passenger seat located directly behind, the aircraft passenger seat as claimed in the invention makes available an enlarged "living space" for the user of the aircraft passenger seat located directly behind. By using the cavity which is not otherwise used within the support structure 11 of the backrest 1 as the receptacle or pocket for printed material, thus without having to tolerate the corresponding disadvantages it becomes possible to implement tighter seating on the pertinent aircraft, and to exploit the corresponding economic advantage.